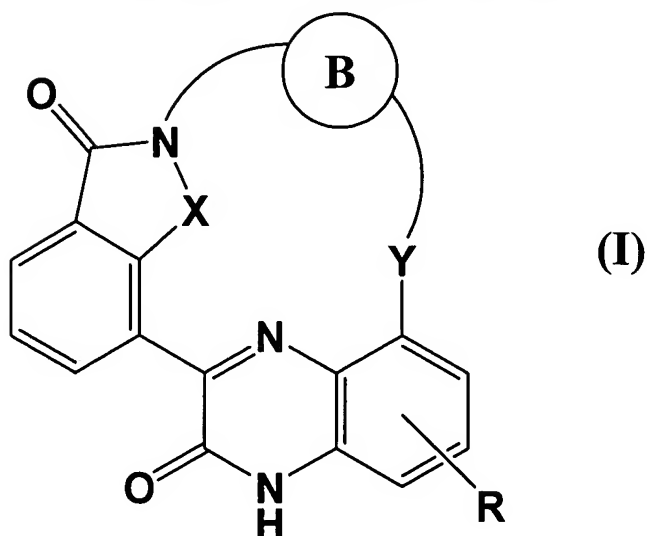


## AMENDMENTS TO THE CLAIMS

1. (Original) A quinoxalinone derivative of the formula (I):

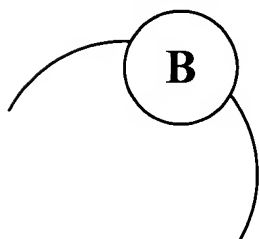


or a pharmaceutically acceptable salt or ester thereof, wherein;

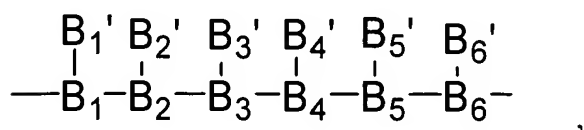
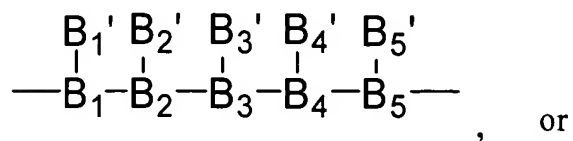
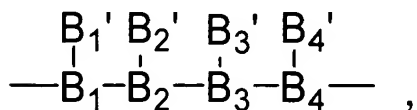
X is NH, S, O or CH<sub>2</sub>;

Y is O or NR', wherein R' is hydrogen or lower alkyl;

the partial structure



is selected from the following formula:



wherein  $B_1, B_2, \dots, B_{n-1}$  and  $B_n$ , and  $B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$  (in which  $n$  is 4, 5 or 6) are each defined as follows:

$B_1, B_2, \dots, B_{n-1}$  and  $B_n$  are each independently C, CH, CR<sub>0</sub>, N or O (wherein when  $B_1, B_2, \dots, B_{n-1}$  and  $B_n$  are each independently C, then  $B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$  are oxo, respectively;

when  $B_1, B_2, \dots, B_{n-1}$  and  $B_n$  are each independently O, then  $B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$  are each taken together with  $B_1, B_2, \dots, B_{n-1}$  and  $B_n$ , respectively, to form O, with the proviso that two or more members of  $B_1, B_2, \dots, B_{n-1}$  and  $B_n$ , at the same time, are not taken together with  $B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$ , respectively, to form O; and

R<sub>0</sub> is lower alkyl), and

$B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$  are each independently hydrogen, halogen, hydroxy, oxo, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, lower alkyl or lower alkenyl (wherein

said lower alkyl and said lower alkenyl may be substituted with one or more, same or different substituents selected from the group consisting of hydroxy, lower alkoxy, amino and lower alkylamino, and

among  $B'_1, B'_2, \dots, B'_{n-1}$  and  $B'_n$ ,  $B'_i$  and  $B'_{i+2}$  (in which  $i$  is 1, 2 or 3) taken together with  $B_i, B_{i+1}$  and  $B_{i+2}$ , or  $B'_i$  and  $B'_{i+3}$  (in which  $i$  is 1 or 2) taken together with  $B_i, B_{i+1}, B_{i+2}$  and  $B_{i+3}$ , may form a C<sub>5</sub>-C<sub>6</sub> cycloalkyl or an aliphatic heterocyclic group selected from <substituent group  $\beta_1$ >, and said cycloalkyl and said aliphatic heterocyclic group may be substituted with one or more, same or different substituents selected from lower alkyl and <substituent group  $\alpha$ >);

R is hydrogen, lower alkyl, lower alkenyl, amino in which the nitrogen atom is di-substituted with R<sub>a</sub> and R<sub>b</sub>, amino-lower alkyl in which the nitrogen atom is di-substituted with R<sub>a</sub> and R<sub>b</sub>, or L, wherein R<sub>a</sub> and R<sub>b</sub> are each independently hydrogen, lower alkyl, lower alkoxyalkyl or halogenated lower alkyl, and L is L<sub>1</sub>-L<sub>2</sub>-L<sub>3</sub> (wherein L<sub>1</sub> is a single bond, -(CH<sub>2</sub>)<sub>k1</sub>-, -(CH<sub>2</sub>)<sub>k1</sub>-O- or -(CH<sub>2</sub>)<sub>k1</sub>-NH- (in which k<sub>1</sub> is an integer of 1 to 3); L<sub>2</sub> is a single bond or -(CH<sub>2</sub>)<sub>k2</sub>- (in which k<sub>2</sub> is an integer of 1 to 3); and L<sub>3</sub> is lower alkyl, lower alkoxy, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, phenyl, pyridyl, pyrrolidinyl or piperidinyl, said lower alkyl, lower alkoxy, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, phenyl, pyridyl, pyrrolidinyl or piperidinyl being optionally substituted with one or more fluorine atoms); or

a substituent selected from <substituent group  $\alpha$ >, which may be substituted with one or more, same or different substituents selected from <substituent group  $\gamma$ >, or lower alkyl substituted with said substituent; or

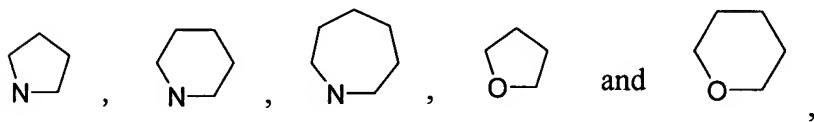
a cyclic group selected from <substituent group  $\beta_2$ >, which may be substituted with one or more, same or different substituents selected from a lower alkyl, <substituent group  $\alpha$ > and <substituent group  $\gamma$ > and also may be substituted with J (wherein J is  $J_1$ - $J_2$ - $J_3$ ;  $J_1$  is a single bond, -C(=O)-, -O-, -NH-, -NHCO-, -(CH<sub>2</sub>)<sub>k3</sub>- or -(CH<sub>2</sub>)<sub>k3</sub>-O- (in which k3 is an integer of 1 to 3);  $J_2$  is a single bond or -(CH<sub>2</sub>)<sub>k4</sub>- (in which k4 is an integer of 1 to 3); and  $J_3$  is lower alkyl, lower alkoxy, -CONR<sub>a</sub>R<sub>b</sub> (wherein R<sub>a</sub> and R<sub>b</sub> each have the same meaning as defined above), phenyl, pyridyl, pyrrolidinyl or piperidinyl, said lower alkyl, lower alkoxy, phenyl, pyridyl, pyrrolidinyl or piperidinyl being optionally substituted with one or more fluorine atoms), or lower alkyl substituted with said cyclic group, and

in the above, <substituent group  $\alpha$ >, <substituent group  $\beta_1$ >, <substituent group  $\beta_2$ > and <substituent group  $\gamma$ > each have the meanings shown below:

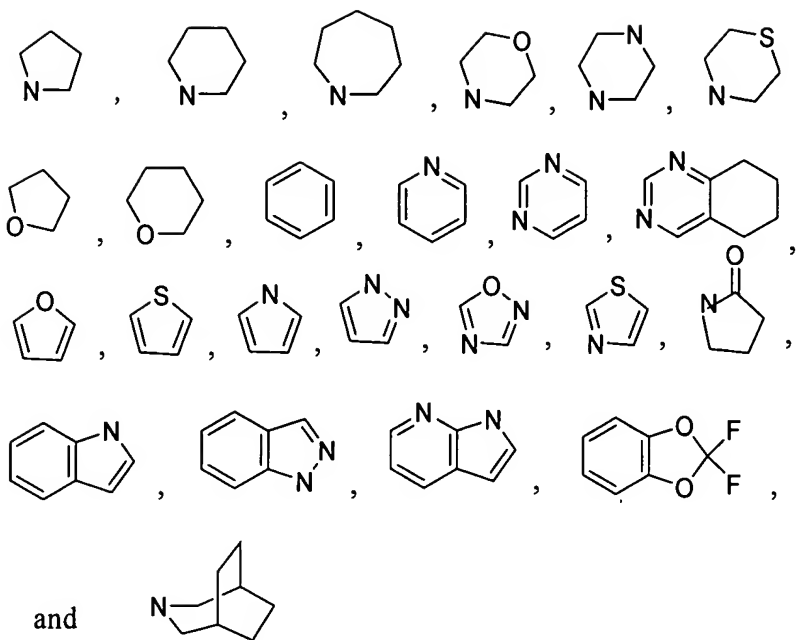
<substituent group  $\alpha$ >

hydroxy, hydroxy-lower alkyl, cyano, halogen, carboxyl, lower alkanoyl, lower alkoxycarbonyl, lower alkoxy, lower alkoxyalkyl, amino, lower alkylamino, lower alkylsulfonyl, halogenated lower alkyl, halogenated lower alkoxy, halogenated lower alkylamino, nitro and lower alkanoylamino,

<substituent group  $\beta_1$ >



<substituent group  $\beta_2$ >



<substituent group  $\gamma$ >

C<sub>3</sub>-C<sub>6</sub> cycloalkyl, lower alkyl substituted with C<sub>3</sub>-C<sub>6</sub> cycloalkyl, phenyl, lower alkyl substituted with phenyl, pyridyl, pyrrolidinyl and piperidinyl, said C<sub>3</sub>-C<sub>6</sub> cycloalkyl, phenyl, pyridyl, pyrrolidinyl and piperidinyl being optionally substituted with one or more fluorine atoms.

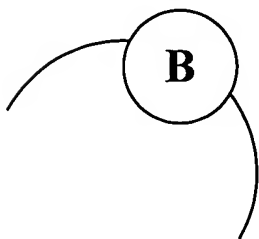
**2. (Original)** The compound according to claim 1 or a pharmaceutically acceptable salt or ester thereof, wherein;

X is NH or S; and

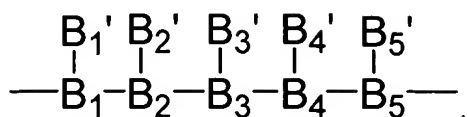
Y is O.

**3. (Original)** The compound according to claim 2 or a pharmaceutically acceptable salt or ester thereof, wherein;

the partial structure



is the formula:



**4. (Original)** The compound according to claim 3 or a pharmaceutically acceptable salt or ester thereof, wherein;

$B_1, B_2, B_3, B_4$  and  $B_5$  are each independently CH; or

$B_1, B_2, B_4$  and  $B_5$  are each independently CH, and  $B_3$  is N or O.

**5. (Original)** The compound according to claim 4 or a pharmaceutically acceptable salt or ester thereof, wherein;

the <substituent group  $\alpha$ > is selected from hydroxy, hydroxy-lower alkyl, halogen, lower alkoxy, lower alkoxyalkyl, lower alkylamino, methyl substituted with one to three fluorine atoms, methoxy substituted with one to three fluorine atoms and lower alkylamino substituted with one to three fluorine atoms; and the <substituent group  $\beta_1$ > is



**6. (Original)** The compound according to claim 5 or a pharmaceutically acceptable salt or ester thereof, wherein;

$B_1, B_2, B_4$  and  $B_5$  are each independently CH,  $B_3$  is N, and all of  $B'_1, B'_2, B'_3, B'_4$  and  $B'_5$  are hydrogen; or

one of  $B'_1, B'_2, B'_3, B'_4$  and  $B'_5$  is lower alkyl or lower alkenyl, and all the others are hydrogen; or

at least two of  $B'_1, B'_2, B'_3, B'_4$  and  $B'_5$  are each independently lower alkyl or lower alkenyl, and all the others are hydrogen; or

among  $B'_1, B'_2, B'_3, B'_4$  and  $B'_5, B'_i$  and  $B'_{i+2}$  (in which  $i$  is 1, 2 or 3) taken together with  $B_i, B_{i+1}$  and  $B_{i+2}$  form an aliphatic heterocycle selected from <substituent group  $\beta_1$ > (wherein said aliphatic heterocycle may be substituted with one or more, same

or different substituents selected from lower alkyl and <substituent group  $\alpha$ >), and the others are hydrogen, lower alkyl or lower alkenyl.

**7. (Original)** The compound according to claim 6 or a pharmaceutically acceptable salt or ester thereof, wherein;

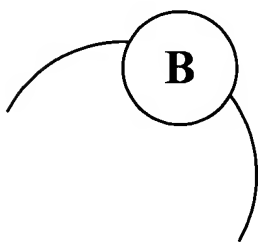
X is NH;

B<sub>1</sub>, B<sub>2</sub>, B<sub>4</sub> and B<sub>5</sub> are each independently CH, and B<sub>3</sub> is N;

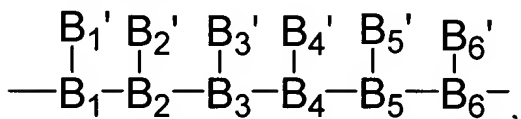
among B'<sub>1</sub>, B'<sub>2</sub>, B'<sub>3</sub>, B'<sub>4</sub> and B'<sub>5</sub>, B'<sub>i</sub> and B'<sub>i+2</sub> (in which i is 1) taken together with B<sub>i</sub>, B<sub>i+1</sub> and B<sub>i+2</sub> form an aliphatic heterocycle selected from <substituent group  $\beta_1$ > (wherein said aliphatic heterocycle may be substituted with lower alkyl), and the others are hydrogen.

**8. (Original)** The compound according to claim 2 or a pharmaceutically acceptable salt or ester thereof, wherein;

the partial structure



is the formula:



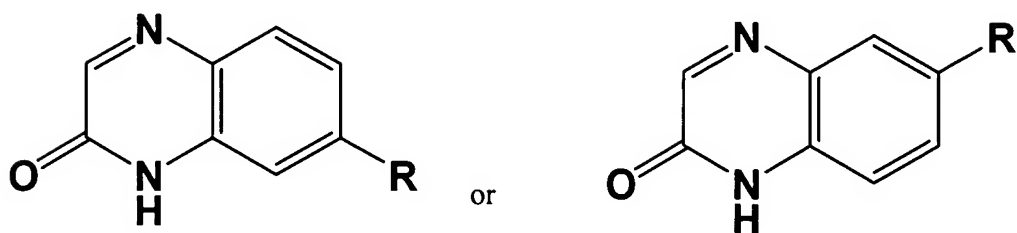
wherein B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>5</sub> and B<sub>6</sub> are each independently CH, and B<sub>4</sub> is N; among B'<sub>1</sub>, B'<sub>2</sub>, B'<sub>3</sub>, B'<sub>4</sub>, B'<sub>5</sub> and B'<sub>6</sub>, B'<sub>i</sub> and B'<sub>i+3</sub> (in which i is 1 or 2) taken together with B<sub>i</sub>, B<sub>i+1</sub>, B<sub>i+2</sub> and B<sub>i+3</sub> form



; and all the others are hydrogen.

**9. (Currently amended)** The compound according to ~~any one of claims 6 to 8~~ claim 6 or a pharmaceutically acceptable salt or ester thereof, wherein;

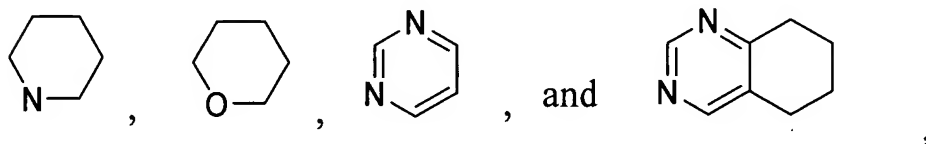
the R binds to quinoxalinone as described in the following formula:



**10. (Original)** The compound according to claim 9 or a pharmaceutically acceptable salt or ester thereof, wherein;

R is hydrogen, amino-lower alkyl in which the nitrogen atom is di-substituted with  $R_a$  and  $R_b$ , or L, wherein  $R_a$  and  $R_b$  are each independently lower alkyl, and L is  $L_1$ - $L_2$ - $L_3$  (wherein  $L_1$  is a single bond,  $-(CH_2)_{k1}-$ ,  $-(CH_2)_{k1}-O-$  or  $-(CH_2)_{k1}-NH-$  (in which  $k1$  is an integer of 1 or 2);  $L_2$  is a single bond or  $-(CH_2)_{k2}-$  (in which  $k2$  is an integer of 1 or 2); and  $L_3$  is lower alkoxy or  $C_3$ - $C_6$  cycloalkyl); or

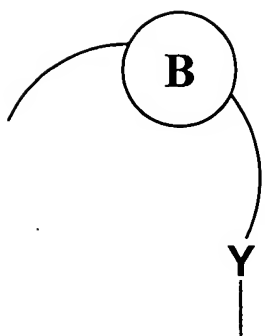
a cyclic group selected from <substituent group  $\beta_2$ >, which may be substituted with one or more, same or different substituents selected from lower alkyl and <substituent group  $\alpha$ >, or lower alkyl substituted with said cyclic group, wherein the <substituent group  $\beta_2$ > is selected from



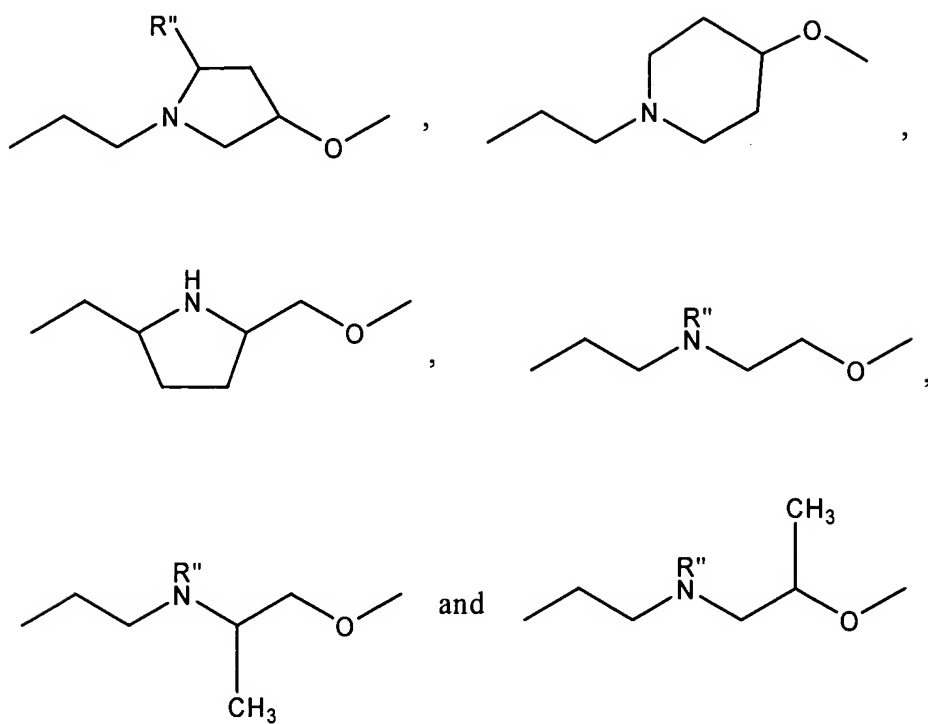
and the <substituent group  $\alpha$ > is selected from halogen, lower alkoxy, lower alkoxyalkyl, methyl substituted with one to three fluorine atoms, and methoxy substituted with one to three fluorine atoms; or lower alkyl substituted with a substituent selected from the group consisting of lower alkylamino and lower alkylamino substituted with one to three fluorine atoms.

**11. (Original)** The compound according to claim 2 or a pharmaceutically acceptable salt or ester thereof, wherein;

the partial structure

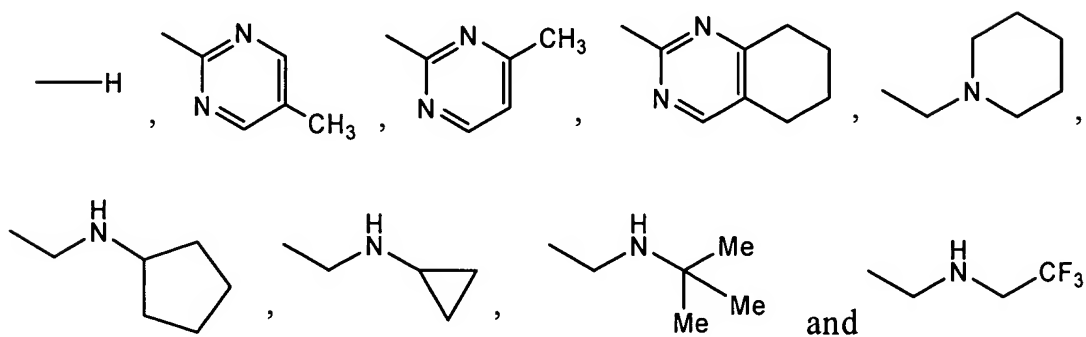


is selected from the group consisting of



wherein R'' is hydrogen or methyl; and

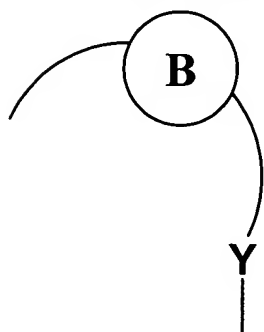
R is selected from the group consisting of



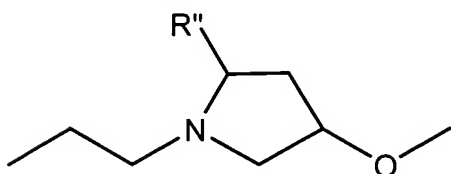


**12. (Original)** The compound according to claim 11 or a pharmaceutically acceptable salt or ester thereof, wherein;

X is NH; and the partial structure



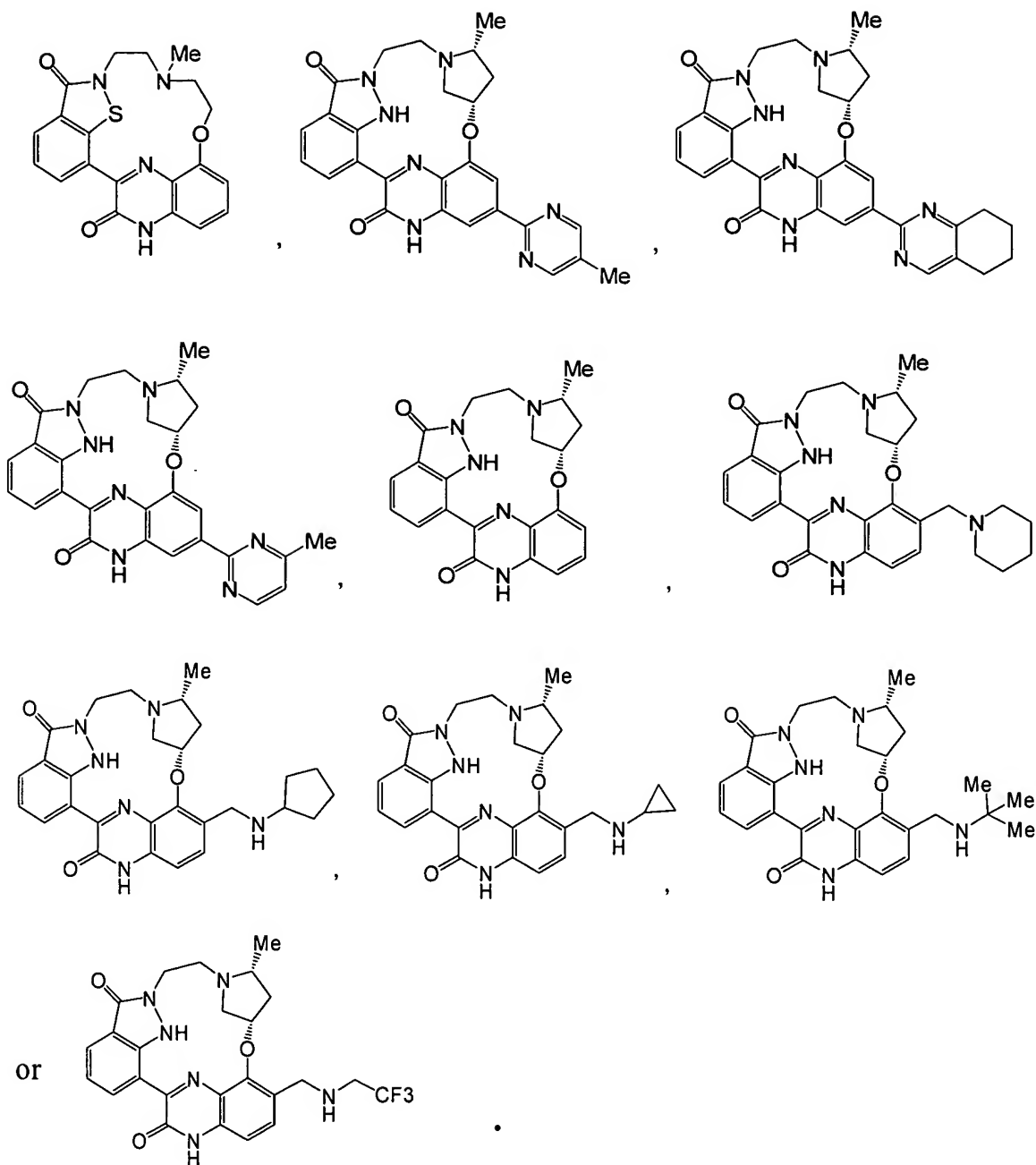
is the formula:



wherein R'' is methyl.

**13. (Original)** The compound according to claim 1 or a pharmaceutically acceptable salt or ester thereof, wherein;

the quinoxalinone derivative is



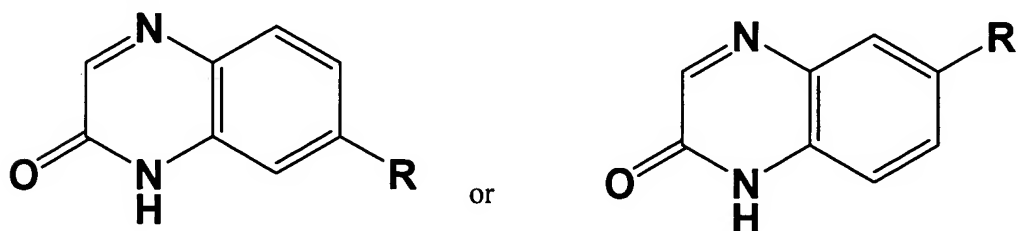
**14. (Original)** A pharmaceutical composition comprising one or more kinds of the quinoxalinone derivative according to claim 1 as an active ingredient, together with a pharmaceutically acceptable carrier or diluent.

**15. (Original)** A Cdk inhibitor comprising one or more kinds of the quinoxalinone derivative according to claim 1 as an active ingredient, together with a pharmaceutically acceptable carrier or diluent.

**16. (Original)** An anti-cancer agent comprising one or more kinds of the quinoxalinone derivative according to claim 1 as an active ingredient, together with a pharmaceutically acceptable carrier or diluent.

**17. (New)** The compound according to claim 7 or a pharmaceutically acceptable salt or ester thereof, wherein;

the R binds to quinoxalinone as described in the following formula:



**18. (New)** The compound according to claim 8 or a pharmaceutically acceptable salt or ester thereof, wherein;

the R binds to quinoxalinone as described in the following formula:

